Appendix C

NON-TECHNICAL ABSTRACT:

Autologous bone marrow transplantation is a technique which makes safe the very high doses of chemotherapy and radiation which are required to eradicate some populations of the neoplastic cells. The marrow is removed from the hip bones of the patient at the time of remission, stored and re-infused into the patient after intensive systemic therapy in order to restore marrow function. Peripheral blood will also be used for the restoration of hematopoietic function following bone marrow transplantation. We will compare peripheral blood with marrow with respect to their ability to promote hematopoietic recovery. It is now impossible to determine if relapse arises from residual cells or if residual leukemia cells present in systemic circulation after intensive therapy can contribute to the relapse. Molecules called "marking vectors" can be used to resolve this question, and to evaluate the efficacy of purging of marrow stored from chronic lymphocytic leukemia (CLL) patients. To accomplish this, a portion of the bone marrow and peripheral blood cells stored from the patient will be incubated with the marking vector. This vector will introduce a new genetic marker into these neoplastic cells. If the neoplastic cells appearing at the time of relapse contain the marker, then the relapse arose from cells infused with the autologous bone marrow or peripheral blood. Thus, in this case, the methods used to remove the neoplastic cells from the autologous bone marrow or peripheral blood cells used for transplant will be identified as insufficient stringency to remove all of the neoplastic cells. In this case, more thorough measures can then be undertaken to remove the neoplastic cells from the marrow. In this study, the G1Na and LNL6 marking vectors will be used to tag the abnormal cells which may be infused into the patient along with the hematopoietic cells used to regenerate marrow function after intensive therapy. The G1Na and LNL6 vectors will also be used to mark the peripheral blood and marrow respectively. The results of this study will be used to improve the therapy of future patients but will not necessarily benefit the patients themselves.